

*Phymatodes vulnerata* Lec. was also found on the dead maple branches, thus confirming the observations of Burke and others.

*Dichelonyx oregona* Van Dyke, a species described by me from material collected by Mr. F. W. Nunenmacher in Southwestern Oregon, was also found in abundance concealed in the foliage of the golden-leaved oak, *Quercus chrysolepis* Liebm. The yellow color of the beetle harmonized fully with the yellow down on the underside of the leaves. This may also be a case of discontinuous distribution, though I doubt it. We have, however, a very beautiful case of this in *Dichelonyx robusta* Fall, a species described by Fall from material collected in the Willamette Valley, Oregon, and later found east of the Cascades near Klamath Falls, Oregon. During the summer of 1920, Professor E. O. Essig and some of his students found an isolated colony of this on Mt. Hamilton, Santa Clara County, California. No specimens have ever been taken in the intermediate region, even though competent collectors have worked in this territory for years.

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OBSERVATIONS ON THE EGG-LAYING  
HABITS OF *SAXINIS SAUCIA* LEC.  
(COLEOPTERA-CHRYSOMELIDÆ)

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During the summer of 1923, while on the grounds of Stanford University, I made some notes concerning the egg-laying habits of *Saxinis saucia* Lec. which I thought might be of interest as supplementing the observations of Dr. Van Dyke, noted elsewhere in this number.

On July 10, 1923, a female of this leaf beetle was observed situated about five feet above the ground on a defoliated twig of a Christmas berry (*Heteromeles salicifolia*). Her abdomen was freely extended from this perch, while a delicate yellow egg (Fig. a) was observed at the apex. Supporting herself with the first two pairs of legs, she had her hind legs available, to use as a set of most adequate molding tools. Holding the egg with the tarsi in a longitudinal position, pressed against the abdomen, small dabs of colleterial material were excreted. After

each discharge, the hind feet slowly moved the egg around from left to right, thus coating it with a solid layer of brownish wax. After this process had continued for twenty minutes, the egg had become materially larger and of a darker color, although it had kept its original shape. The next step in this complicated manner of taking care of the egg, after oviposition, was then taken. It was turned at a right angle with the abdomen, and a circle of wax was placed on the anterior end. Molding it with abdomen and feet a collar was formed, thus giving the egg the shape of a vase. (Fig. b). After a little rest, during which the egg was kept in the same position, a long structure was protruded with little jerks and contractions of the abdomen. It appeared to be slightly serrated and superficially resembled an ovipositor. It was moved along the egg surface (Fig. c), being approximately of the same curvature, was lifted up and protruded again. When this structure extended a little beyond the posterior end of the egg, it was broken off and glued against the still pliable waxy rim. After a few moments the egg was carefully turned and a second band was longitudinally placed and glued, taking about two minutes' time. In all, eight bands were placed. While still wondering what the next move of this solemn artist would be, the elaborate structure was suddenly dropped, before I could realize what had happened, or could even attempt to save it. However, the adult was taken into the laboratory, and that same evening at 10:05 a second egg was produced and treated in similar fashion while being observed by Professor G. F. Ferris and myself. The forming of the bands or ribs took only a little more than a minute, while the whole structure was finished in 30 minutes. The protective ribs were irregular in length and only fastened at the rim, while the hind tarsi continually pressed them against the coated surface of the egg. After the egg was finished and ready to be dropped, it had the appearance of a little seed or shrivelled brown flower bud (Fig. d). The next morning (July 11, 1923) three more eggs had been laid, giving five eggs in approximately fifteen hours. Between oviposition, a rest of about two and one-half hours was observed, during which time the insect very likely feeds and prepares itself for the production of the next egg. Before noon another egg had been laid, but no coating had taken place. However, a few scattered dabs of waxy excretion were found in the container. Her confinement and lack of food were very likely the reason for this.

Several adult females were later observed, the incubation period of whose eggs proved to be twenty-six days. In the flat saucer-like anterior end of the egg, the larva made an incision three-fourths of the circumference of a circle forming a lid which was pushed off. Sometimes one of the ribs came off attached to the lid.

At the time of making these notes it was observed that the young larvæ remained in the egg-shell, and it was presumed that this was either due to the smooth surface of the container which made it difficult for the young larvæ to extricate itself from the egg-shell, or because it served as a temporary protection for the soft body. All of the larvæ observed had this "case-bearing" habit, not understood at the time, but explained by the observations of Dr. E. C. Van Dyke as a result of its later myrmacophilous life. As expressed in my original notes, the newly hatched larvæ remind one of immature caddis flies.

Dr. Van Dyke states that the cases of the adult larvæ were composed of an earthy-looking material, no doubt the excreta, and that they were pistol-shaped. The cases were, therefore, no doubt enlarged by the growing larvæ much in the same manner as a snail enlarges its shell.

